

MULTI-PURPOSE COOLER**RELATED APPLICATIONS**

This patent application claims the benefit of United States Provisional Patent
5 Application Serial No. 60/438,118, filed January 6, 2003 and PCT/US04/00052 filed
January 6, 2004, the entire contents of both are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

The present invention relates to multi-purpose coolers, and particularly, to multi-
10 purpose hard coolers. Multi-purpose coolers currently available in the market employ a
variety of lids and manners in which the coolers are opened and closed. Consumers
commonly use multi-purpose coolers as tabletops when the multi-purpose cooler is closed,
by placing food, beverages and other items on top of the lid.

SUMMARY OF THE INVENTION

When the cooler is being used as a tabletop, and the cooler is required to be opened
once again, any items placed on top of the closed cooler need to be removed before the
cooler can be opened. In other cases in which the lid is entirely removable from the main
body of the cooler, the lid can be removed with the food, beverages and other items atop
20 the lid, but the user must cautiously maintain the lid in a substantially horizontal position
such that the items atop the lid are not dropped in the process.

Furthermore, most existing coolers offer no other storage compartments for storage
and transportation of various items that do not require insulation from the surrounding
environment, requiring the user to carry such items separately, or to waste precious
25 insulating volume within the cooler for the storage of such items.

The present invention may include a multi-purpose cooler for storing and
insulating hot and cold food items. The cooler can include a main body and a storage
cavity defined in the main body and having an open end. The cooler can further include
a lid coupled to the main body and movable with respect to the main body between a first
30 position in which the lid substantially covers the open end of the storage cavity and a
second position in which the lid does not substantially cover the open end of the storage
cavity. The lid can be positioned substantially horizontally in movement between the first
position and the second position. The present invention may further include a method for
opening or closing a cooler.

Other features and aspects of the invention will become apparent to those skilled in the art upon review of the following detailed description, claims and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

5 FIG. 1 is a perspective view of a cooler according to one embodiment of the invention.

 FIG. 2 is a perspective view of a cooler according to another embodiment of the invention.

 FIG. 3 is a perspective view of a cooler according to another embodiment of the
10 invention.

 FIG. 4 is a perspective view of a cooler according to another embodiment of the invention.

 FIG. 5 is an exploded view of a handle assembly of the cooler illustrated in
 FIGS. 2-4.

15 Before any embodiments of the invention are explained in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of components set forth in the following description or illustrated in the following drawings. The invention is capable of other embodiments and of being practiced or of being carried out in various ways. Also, it is to be understood that the
20 phraseology and terminology used herein is for the purpose of description and should not be regarded as limited. The use of "including," "comprising" or "having" and variations thereof herein is meant to encompass the items listed thereafter and equivalents thereof as well as additional items. The terms "mounted," "connected" and "coupled" are used broadly and encompass both direct and indirect mounting, connecting and coupling.
25 Further, "connected" and "coupled" are not restricted to physical or mechanical connections or couplings.

DETAILED DESCRIPTION

 FIGS. 1-4 illustrate various multi-purpose coolers embodying the present
30 invention. As each embodiment is described, like parts will be referred to with like reference numerals. FIG. 1 illustrates a multi-purpose cooler 100 comprising a cooler body 105 and a lid 104 movable with respect to the cooler body 105 via at least one arm 106, and a handle 108. The cooler body 105 comprises a base 101 and four sidewalls 103 rising upward from the base to form a storage cavity 102 with an open end 110. The

storage cavity 102 is adapted to store items that require insulation from the surrounding environment. The multi-purpose cooler 100 can be formed by a variety of processes including, but not limited to, at least one of blow molding, injection molding, thermoforming, compression molding, and the like.

5 In FIG. 1, the lid 104 is shown as being movable upward and away relative to the cooler body 105 between a first position in which the multi-purpose cooler is closed and a second position in which the multi-purpose cooler is open. The lid 104 remains substantially horizontal during movement between the first and second positions. In some embodiments of the present invention, the lid 104 can be formed of one or more lids 104. 10 For example, in some embodiments, the lid 104 can be formed of two or more lids 104 that open to opposite sides of the cooler 100. In other embodiments, the lid 104 can be formed of two or more lids 104 that open to the same side or adjacent sides of the cooler 100. In some embodiments employing two or more lids 104, the lids 104 can meet end-to-end in the first position. In other embodiments employing two or more lids 104, the lids 104 can 15 be oriented such that the lids 104 fit side-by-side in the first position.

In FIG. 1, the lid 104 is coupled to the cooler body 105 in a four-bar linkage configuration commonly known to those of ordinary skill in the art. Such a configuration ensures that the lid 104 will remain substantially horizontal throughout movement between the first and second positions. As shown in FIG. 1, the four-bar linkage comprises two 20 sets of two parallel arms 106 (only one set shown) that couple the lid 104 to the cooler body 105. Each arm 106 has a portion adjacent the cooler body 105 movable about a first axis S_1 and a portion adjacent the lid 104 rotatable about a second axis R_1 , such that as the portion of each arm 106 adjacent the cooler body 105 is rotated about axis S_1 , the portion adjacent the lid 104 rotates about axis R_1 and substantially simultaneously revolves about 25 axis S_1 . That is, as the parallel arms 106 making up the four-bar linkage rotate about the first and second axes, the lid 104 revolves about axis S_1 and is moved relative to the cooler body 105, while remaining in a substantially horizontal orientation. Many other types of coupling between the lid 104 and the storage cavity 102 that achieve a similar result are possible and are within the spirit and scope of the present invention.

30 The handle 108 illustrated in FIG. 1 shows one type of handle possible for use with this type of invention. The handle 108 illustrated in FIG. 1 is generally U-shaped, but other handle shapes are well known in the art and are within the scope of the present invention. The handle 108 shown in FIG. 1 is one of a pair of handles (only one of the pair is shown in FIG. 1). As illustrated in FIG. 1, the top portions of the "U" in the handle

108 are rotatable about an axis Y_1 such that the handle 108 can be lifted upward for an improved grip when carrying the multi-purpose cooler 100. Such handles 108 are commonly known to those of ordinary skill in the art and therefore are not described further herein.

5 The embodiment illustrated in FIG. 1 further comprises additional accessory items integrally formed in or otherwise coupled to the lid 104, including cup holders 109 and recessed trays 111. Other accessory storage items (not shown) such as coin or money holders, straw holders, silverware holders, and other utensil holders can be included with the present invention. Since the lid 104 remains substantially horizontal throughout
10 movement between the first and second positions, the above-mentioned accessories and compartments can be used and accessed when the cooler 100 is closed as well as when the cooler 100 is open.

As illustrated in FIG. 1, a forward portion of the lid 104 rests on a sidewall 103 of the cooler body 105 when the lid 104 is in the second (open) position. In addition, the cup
15 holders 109 and the tray 111 are defined in an upper surface of the lid 104, and particularly, on a forward half of the upper surface of the lid 104. This orientation of the cup holder 109 and the tray 111 allows the weight of any articles placed in the cup holder 109 and the tray 111 to be at least partially supported by the sidewall 103 of the cooler body 105 when the lid 104 is in the second position. Other accessory storage items can be
20 formed in the lid 104 such that at least a portion of the accessory storage item is formed in the lid 104 forward of a centerline of the lid 104 to achieve a similar result.

FIG. 2 illustrates a multi-purpose cooler 200 according to another embodiment of the invention. Multi-purpose cooler 200 embodies many similar elements as multi-purpose cooler 100, but cooler 200 comprises a handle 208 different from that of cooler
25 100. The handle 208 is located adjacent the cooler body 205, is rotatable about an axis T_2 and lockable in at least one position. Such a handle 208 preferably has at least a first position in which the handle 208 is in an upright and locked position when the cooler 200 is closed, and a second position in which the handle 208 is adjacent the bottom of the cooler body 105 and locked in that position when the cooler 200 is open. Thus, when in
30 the second position, the handle 208, as illustrated in FIG. 2, supports the lid 204 and cooler body 205 when the lid 204 is in the second (open) position, thereby preventing the cooler 200 from tipping over because of the weight of the lid 204 or anything placed on the lid 204.

The handle 208 can be used in conjunction with various types of lids that can be movable in a variety of manners commonly known to those of ordinary skill in the art to achieve a similar result. For example, in some embodiments of the present invention (not shown), the lid 204 can be slidable relative to the sidewalls 203 along a track adjacent the
5 sidewalls 203, while remaining in a substantially horizontal orientation. In other embodiments, the lid 204 can be coupled to a generally vertically-oriented pivot pin such that the lid (or lids) 204 can be pivoted from a first position in which the cooler 200 is closed to a second position in which the cooler 200 is open. In such embodiments, the lid 204 may first need to be raised relative to the cooler body 205 before being able to be
10 pivoted to the second position. Still, other manners of lid movement that allow the lid to remain substantially horizontal during movement between the first and second positions are possible and are included in the scope of the present invention.

One embodiment of the handle 208 is illustrated in detail in FIG. 5. FIG. 5 shows a handle assembly 225 that comprises a base 230, a biasing element (e.g., a spring) 232, a
15 knob 234 further comprising at least one engagement tooth 235, the handle 208, a cap 238, and a fastener 240. Other handle assembly configurations that achieve a similar result are possible and within the scope of the present invention.

The base 230 shown in FIG. 5 is mounted either directly or indirectly to the cooler body 205. In the embodiment shown, the base 230 comprises a flat portion 229 which is
20 fastened to the cooler body 205, and an elongated portion 231 that is integrally formed with the flat portion 229, and which extends axially outwardly (along axis T_2) from the cooler body 205. The present invention does not require the use of the flat portion 229, but rather the elongated portion 231 may be integrally molded with the cooler body 205. The elongated portion 231 retains the biasing element 232. The knob 234 is fitted adjacent
25 the biasing element 232. The knob 234 is movable axially toward and away from the cooler body 205 and base 230. That is, by exerting force on the knob 234 in the direction of the cooler body 205, the knob 234 is moved from a first position further from the base 230 and cooler body 205 to a second position nearer the base 230 and cooler body 205. When this force is removed, the biasing element 232 causes the knob 234 to return to the
30 first position. The knob 234 has a larger cylindrical portion 233 having at least one engagement tooth 235 and a smaller cylindrical portion 237 that interacts with the biasing element 232. The engagement tooth 235 is adapted to engage a groove 239 on the handle 208. The outer-facing surface of the knob 234 is fitted with a cap 238 and fastener 240 (e.g., screw, rivet, bolt, and the like), thereby fastening the knob 234 in a fixed position

relative to the base 230 and handle 208 to substantially prevent rotation of the knob 234 during normal use of the cooler 200.

As illustrated in FIG. 5, the handle 208 has an opening, or aperture, 242 defined by an inner surface 244, the opening 242 dimensioned to at least partially receive the knob 234. The inner surface 244 comprises a plurality of grooves 239 engageable with the engagement tooth 235, and a smooth portion 243. The handle 208 is rotatable about axis T_2 with respect to the knob 234 and base 230. When the knob 234 is forced inward against the biasing element 232 from the first position to the second position, the engagement tooth 235 is freed from engagement with a particular groove 239 to move along the smooth portion 243 of the handle inner surface 244 as the handle 208 is rotated. The handle 208 is then rotated about the knob 234 and axis T_2 , and moved to any number of handle positions. The biasing element 232 causes the knob 234 to return to the first position, thereby causing the engagement tooth 235 to engage with any of the plurality of grooves 239 corresponding to a new handle position, thus locking the handle 208 in the desired new position.

The engagement tooth 235 can be any type of protrusion commonly known to those of skill in the art. Furthermore, the knob 234 may instead include at least one groove that is engageable with a plurality of engagement teeth on the handle inner surface 244 (not shown). Still, other types of protrusion and groove configurations between the knob 234 and the handle inner surface 244 that achieve a similar result are possible and within the scope of the present invention.

In other embodiments of the present invention, the portion of the handle 208 adjacent the cooler body 205 and rotatable about the axis T_2 can include an inwardly-facing recess that can be slid over at least one protrusion extending outwardly from an outer surface of the cooler body 205 to lock the handle 208 in at least the first and second positions described above. As a result, when the handle 208 is rotated to the first position or the second position, for example, the handle 208 locks into position via the interaction between the one or more protrusions on the cooler body 205 and the inwardly-facing recess defined in the handle 208. In still other embodiments, the outer surface of the cooler body 205 can include at least one recess that interacts with a protrusion that extends from an inwardly-facing surface of the handle 208. The interaction between the one or more protrusions (or recesses) on the cooler body 205 and the inwardly-facing recess defined in the handle 208 (or protrusion extending from the handle 208) can include a snap-fit engagement, a detent mechanism, or the like. Such embodiments would not

necessarily include the base 230, the biasing element 232, the knob 234, the aperture 242 or the other elements of the embodiment shown in FIG. 5 and described above.

Referring once again to FIG. 2, the multi-purpose cooler 200 illustrated in FIG. 2 further comprises at least one drawer 220 or additional storage compartment for the storage of accessories and items that do not necessarily need to be insulated from the surrounding environment. The handle 208, when positioned in the second position, can also support, or act as a counterbalance to, an open drawer 220 (if employed). The drawer 220 illustrated in FIG. 2 has a base 221 and four side walls 223 rising upward from the base 221 to form a storage compartment separate from the storage cavity 202. The drawer 220 can be coupled to the lid 204 for movement therewith relative to the cooler body 205, as shown in FIG. 2. The drawer 220 can also be slidably movable relative to the lid 204. Drawer movement is not determined by lid position. That is, the drawer 220 is slidably movable between a closed and an open position whether the lid 204 is in the first or second position or somewhere in between. In the embodiment illustrated in FIG. 2, the drawer 220 is located in a lower portion of the lid 204. However, the drawer 220 can be located in any other portion of the lid 204 or cooler body 205 without departing from the spirit and scope of the present invention. The drawer 220 illustrated in FIG. 2 is illustrated as opening in a direction outward from the front of the multi-purpose cooler 200. However, a drawer 220 opening in any direction from the multi-purpose cooler 200 is possible and is within the scope of the present invention. Alternatively, the multi-purpose cooler 200 may include a lid within the lid 204 that rotates to an open position thereby providing access to storage cavity 202.

In some embodiments of the present invention, a storage compartment can be defined in the lid 204 that is accessible via a cover, door or lid formed in the lid 204. For example, the storage compartment can be accessible from a forward-facing end of the lid 204 or from an upper surface of the lid 204. The lid for the storage compartment can include a hinged door, a sliding door, or the like. The lid for the storage compartment within the lid 204 can include a snap-fit closure, a magnetic closure, or the like. For example, a hinged door can be defined in the upper surface of the lid 204 such that the door can be rotated about a hinge to an open position to provide access to the storage compartment.

FIG. 3 illustrates a third embodiment of the present invention. The multi-purpose cooler 300 has many elements substantially the same as those described above with regard to multi-purpose cooler 200, which are therefore identified by similar numerals. A lid 304

and a handle 308 function substantially the same as the lid 204 and handle 208, respectively, described in detail above. The cooler 300 comprises two drawers 320, both independently and slidably movable relative to the lid 304. The two drawers 320 have substantially the same structure as described in detail above with regard to drawer 220.

- 5 Similar to the drawer 220 illustrated in FIG. 2, drawer movement is not dependent on lid position. As described with regard to FIG. 2, the drawers 320 can be located in any portion of the lid 304 or cooler body 305, but are illustrated in FIG. 3 as being located in a lower portion of the lid 304.

- FIG. 4 illustrates a fourth embodiment of the present invention. The multi-purpose cooler 400 has many elements substantially the same as those described above with regard to multi-purpose cooler 200, which are therefore identified by similar numerals. A lid 404 and a handle 408 function substantially the same as the lid 204 and handle 208, respectively, described in detail above. The cooler 400 shown in FIG. 4 comprises one drawer 420 located beneath the insulating portion (represented in FIG. 4 by broken lines) of the storage cavity 402 and slidably movable into and out of the bottom of the cooler 400. The drawer 420 is substantially the same as drawer 220 described above. The cooler 400 has a thicker base 401 than the other cooler embodiments illustrated in FIGS. 1-3 in which the drawer 420 is located. However, the drawer 420 can be located in any portion of the cooler body 405 or lid 404 without departing from the scope of the present invention.
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Various features and aspects of the invention are set forth in the following claims.

CLAIMS

1. A cooler apparatus providing storage and insulation to hot or cold items, the cooler apparatus comprising:
 - a main body having a base and sidewalls;
 - 5 a storage cavity defined in the main body and having an open end; and
 - a lid coupled to the main body and movable with respect to the main body between a first position in which the lid substantially covers the open end of the storage cavity and a second position in which the lid does not substantially cover the open end of the storage cavity, the lid positioned substantially horizontally in movement between the
 - 10 first position and the second position.
2. The cooler apparatus set forth in claim 1, further comprising at least one of a cup holder and a tray defined in an upper surface of the lid.
- 15 3. The cooler apparatus set forth in claim 2, wherein a first portion of the lid is positioned adjacent an upper end of at least one sidewall of the main body when the lid is in the second position, and wherein at least one of the cup holder and the tray are at least partially defined in the first portion of the lid such that articles placed in at least one of the cup holder and tray can be at least partially supported by the at least one sidewall of the
- 20 main body.
4. The cooler apparatus set forth in claim 1, further comprising at least one arm positioned to couple the lid to the main body, the arm including a first portion positioned adjacent the lid and a second portion positioned adjacent the main body.
- 25 5. The cooler apparatus set forth in claim 4, wherein the first portion of the arm is rotatable about a first axis, the second portion of the arm is rotatable about a second axis, and the second portion of the arm is revolvable about the first axis as the lid is moved between the first position and the second position.
- 30 6. The cooler apparatus set forth in claim 4, wherein the at least one arm includes four arms arranged in two sets of two parallel arms, one set of parallel arms being located on an opposite side of the cooler from the other.

7. The cooler apparatus set forth in claim 1, further comprising a handle rotatable about an axis and lockable in at least two positions, the handle comprising a first portion pivotally secured to the main body of the cooler and a second portion adapted to be grasped by a user.

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8. The cooler apparatus set forth in claim 7, wherein the handle is lockable in a first position in which the second portion of the handle is upright and a second position in which the second portion of the handle is adjacent the base of the main body of the cooler.

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9. The cooler apparatus set forth in claim 8, wherein the handle is lockable in the second position to support the lid when the lid is in the second position.

10. The cooler apparatus set forth in claim 1, further comprising at least one drawer, the drawer being defined in at least one of the lid and the main body of the cooler.

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11. The cooler apparatus set forth in claim 10, wherein the drawer is defined in the main body of the cooler and separate from the storage cavity.

12. A cooler apparatus for storing and insulating hot or cold items, the cooler apparatus comprising:

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a main body comprising a base and sidewalls;

a storage cavity defined in the main body and having an open end; and

a lid coupled to the main body and movable between a first position in which the lid substantially covers the open end of the storage cavity and a second position in which the lid does not substantially cover the open end of the storage cavity; and

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an arm positioned to couple the lid to the main body, the arm comprising a first portion pivotally coupled to the main body and rotatable about a first axis and a second portion pivotally coupled to the lid and rotatable about a second axis.

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13. The cooler apparatus set forth in claim 12, wherein the lid remains substantially horizontal during movement between the first position and the second position.

14. The cooler apparatus set forth in claim 12, wherein the second portion of the arm revolves about the first axis when the lid is moved between the first position and the second position.

5 15. The cooler apparatus set forth in claim 12, wherein the arm is one of four arms arranged in two sets of two parallel arms.

16. The cooler apparatus set forth in claim 12, further comprising at least one of a cup holder, a tray, a coin holder, and a utensil holder defined in an upper surface of
10 the lid.

17. The cooler apparatus set forth in claim 12, further comprising at least one drawer defined in at least one of the lid and the main body.

15 18. The cooler apparatus set forth in claim 12, further comprising a handle coupled to the main body and rotatable about a third axis, the handle being lockable in at least two angular positions about the third axis.

19. The cooler apparatus set forth in claim 18, wherein the handle is lockable in
20 a first position in which the handle is positioned upright and a second position in which the handle is positioned adjacent the base of the main body of the cooler.

20. The cooler apparatus set forth in claim 19, wherein the handle is lockable in the second position to support the lid when the lid is in the second position.

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21. A method for opening or closing a cooler, the cooler used for storing and insulating hot or cold items, the method comprising:

providing a main body of the cooler that defines a storage cavity having an open end;

5 providing a lid coupled to the main body;

moving the lid between a first position in which the lid substantially covers the open end of the storage cavity and a second position in which the lid does not substantially cover the open end of the storage cavity; and

10 maintaining the lid in a substantially horizontal position during movement of the lid between the first position and the second position.

22. The method set forth in claim 21, further comprising

positioning at least one article on an upper surface of the lid, and

15 moving the lid between the first position and the second position with the at least one article positioned on the upper surface of the lid during movement of the lid between the first position and the second position.

23. The method set forth in claim 21, further comprising:

20 providing an arm positioned to couple the lid to the main body, the arm comprising a first portion pivotally coupled to the main body and a second portion pivotally coupled to the lid, and

rotating the first portion of the arm about a first axis and the second portion of the arm about a second axis during movement of the lid between the first position and the second position.

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24. The method set forth in claim 23, further comprising revolving the second portion of the arm about the first axis during movement of the lid between the first position and the second position.

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25. The method set forth in claim 21, further comprising:
providing a handle coupled to the main body of the cooler, the handle being rotatable about a third axis,
rotating the handle about the third axis between a first position in which the handle is upright and a second position in which the handle is positioned adjacent a base portion of the main body of the cooler, and
locking the handle in at least one of the first position and the second position.
- 10 26. The method set forth in claim 25, wherein locking the handle in the second position allows the handle to support the lid when the lid is in the second position.
- 15 27. A cooler for storing and insulating hot or cold items, the cooler comprising:
a main body;
a storage cavity defined in the main body and having an open end;
a lid coupled to the main body and positionable to substantially cover the open end of the storage cavity;
a handle coupled to the main body, the handle being rotatable about a first axis and lockable in at least two positions with respect to at least one of the main body and the lid, the handle comprising a first portion pivotally secured to the main body and a second portion coupled to the first portion and adapted to be grasped by a user.
- 20 28. The cooler set forth in claim 27, wherein the handle is lockable in a first position in which the second portion is upright and positioned to be grasped by a user for carrying and a second position in which the second portion is adjacent a base portion of the main body of the cooler.
- 25 29. The cooler set forth in claim 27, wherein the lid is movable between a first position in which the lid substantially covers the open end of the storage cavity and a second position in which the lid does not substantially cover the open end of the storage cavity, the lid positioned substantially horizontally in movement between the first position and the second position.
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30. The cooler set forth in claim 29, wherein the handle is positionable in the second position to support the lid when the lid is in the second position.

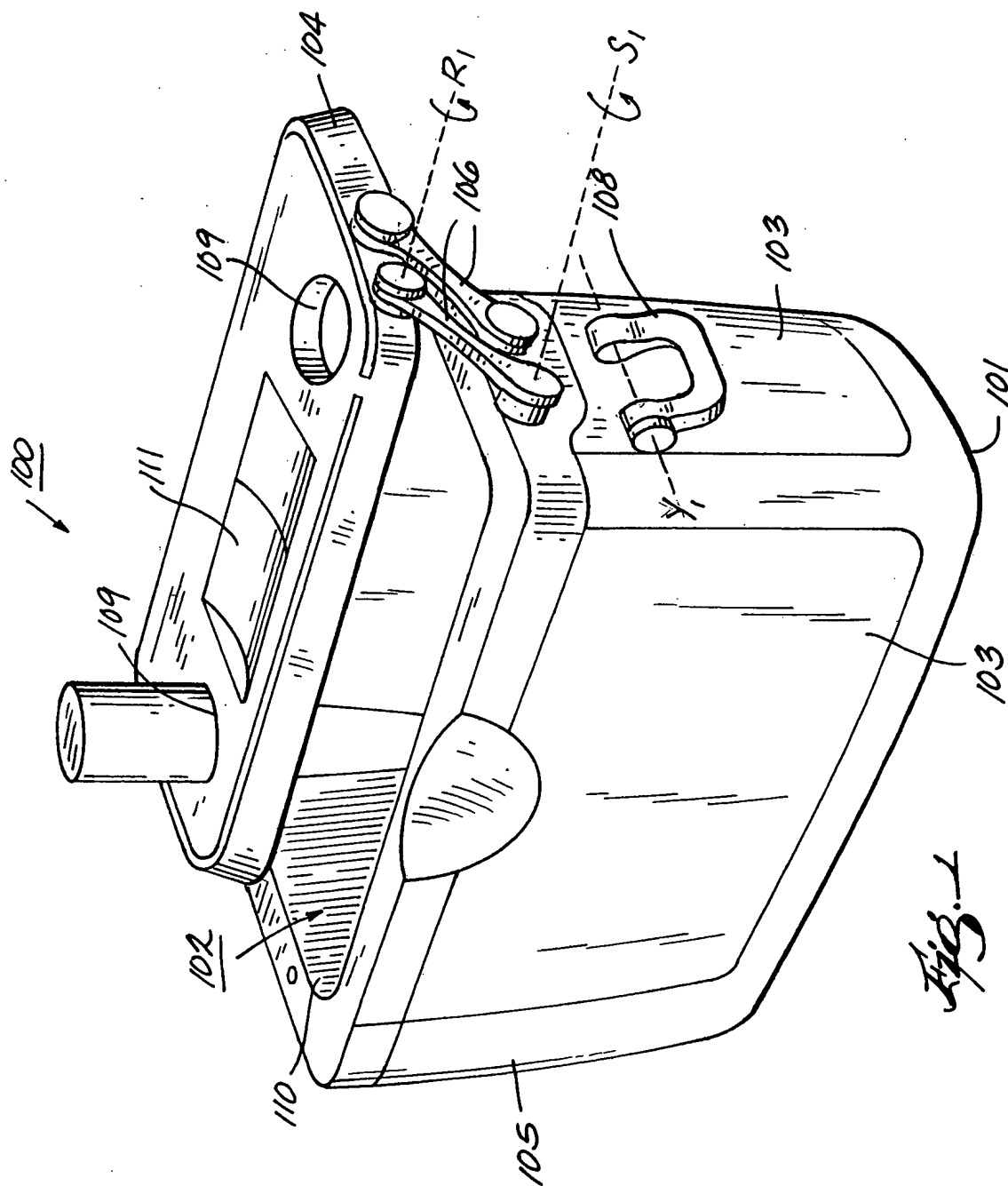
5 31. The cooler set forth in claim 27, wherein the first portion of the handle comprises an inner surface that at least partially defines an aperture, the inner surface further defining a plurality of grooves.

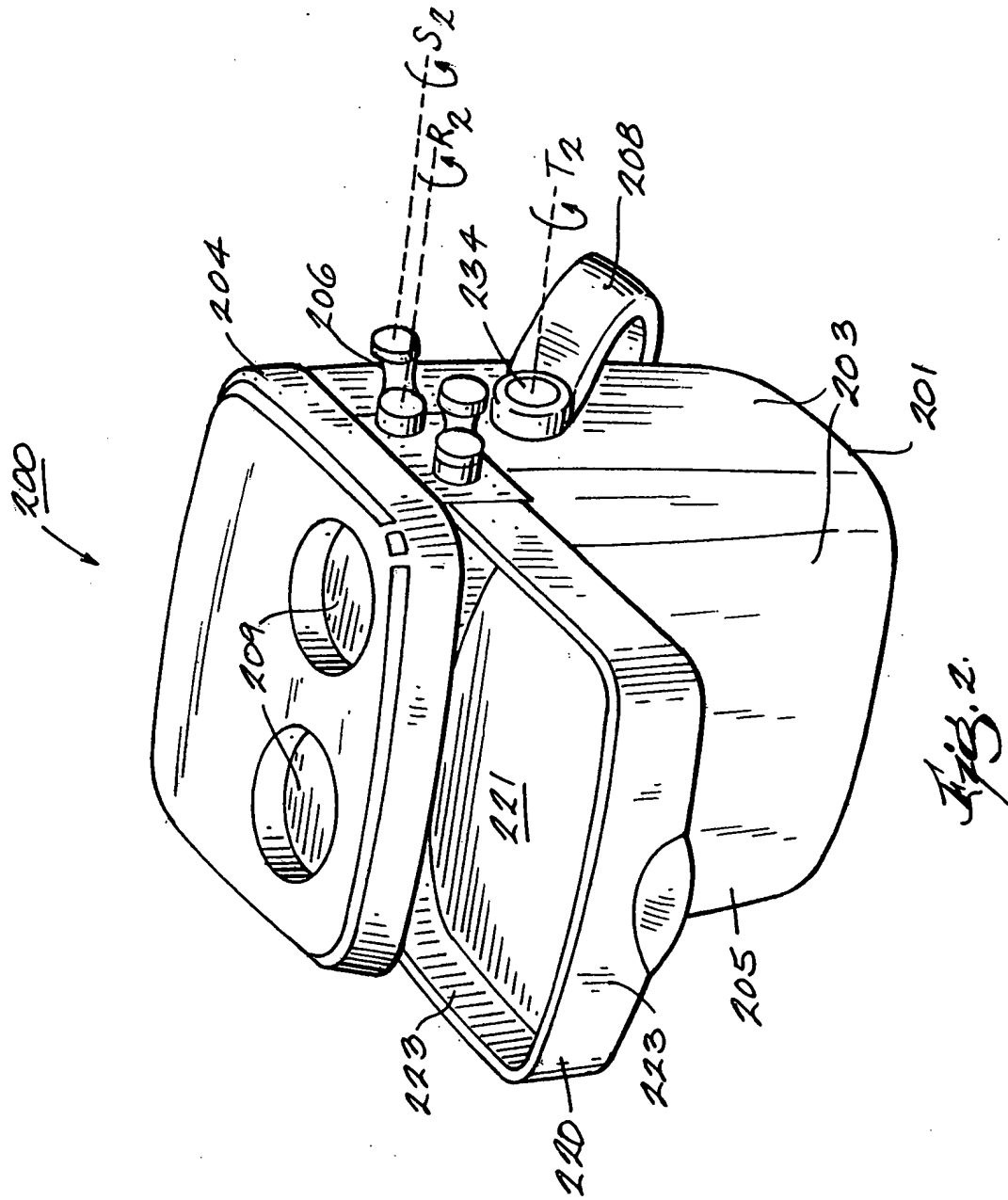
10 32. The cooler set forth in claim 31, further comprising a knob located adjacent the main body and dimensioned to be received in the aperture of the first portion of the handle, the knob comprising an engagement tooth extending outwardly from an outer surface of the knob, the engagement tooth positioned to engage any of the plurality of grooves defined in the inner surface of the first portion of the handle to lock the handle in the at least two positions.

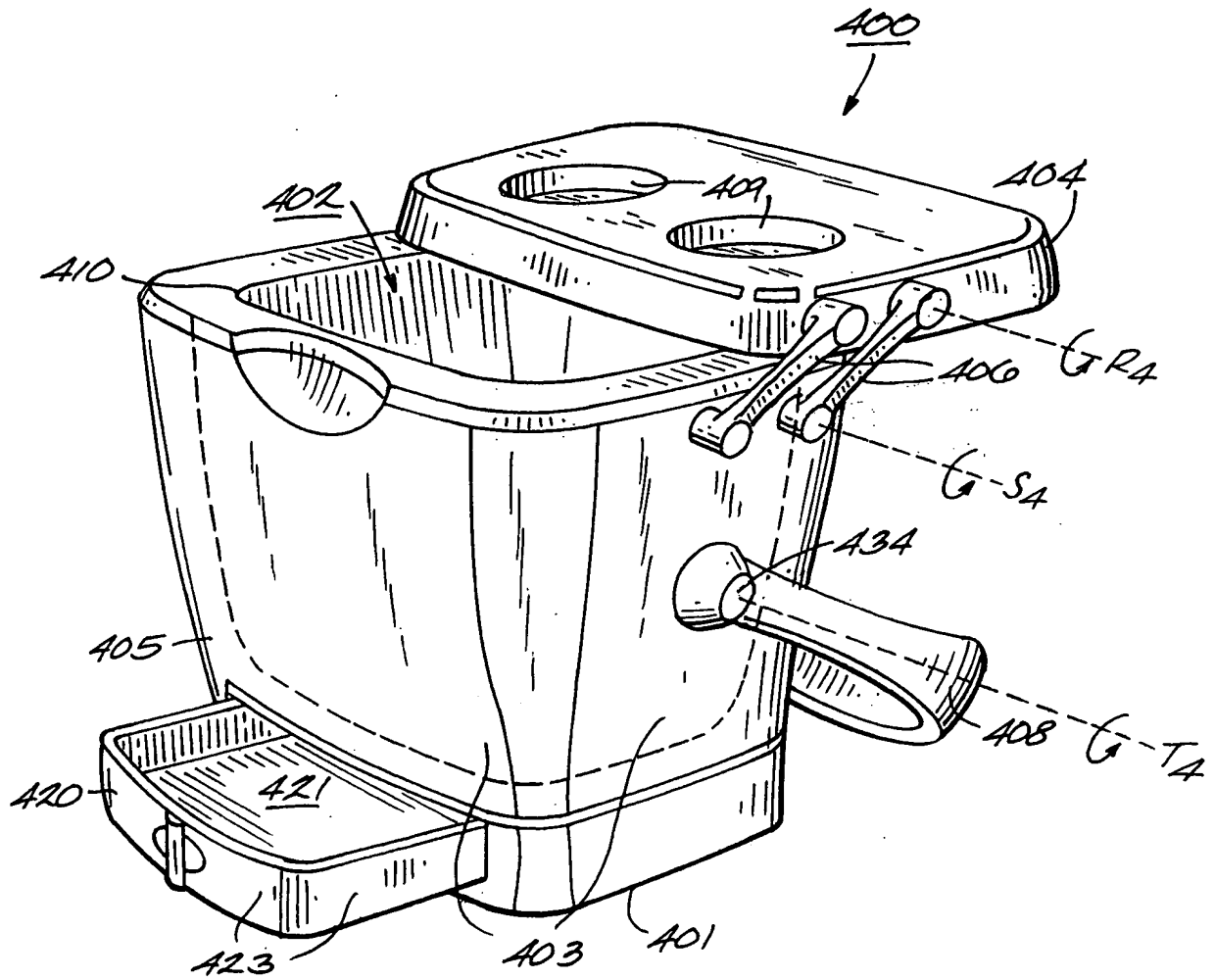
15 33. The cooler set forth in claim 32, wherein the knob is movable toward and away from the main body of the cooler along the first axis between a first position in which the engagement tooth is engaged with any of the plurality of grooves defined in the inner surface and a second position in which the engagement tooth is free from engagement with any of the plurality of grooves defined in the inner surface.

ABSTRACT

A cooler apparatus for storing and insulating hot or cold items. The cooler apparatus can include a main body having a base and sidewalls and a storage cavity defined in the main body and having an open end. The cooler apparatus can further
5 include a lid coupled to the main body and movable with respect to the main body between a first position in which the lid substantially covers the open end of the storage cavity and a second position in which the lid does not substantially cover the open end of the storage cavity. The lid can be positioned substantially horizontally in movement between the first position and the second position.





*Fig. 4*

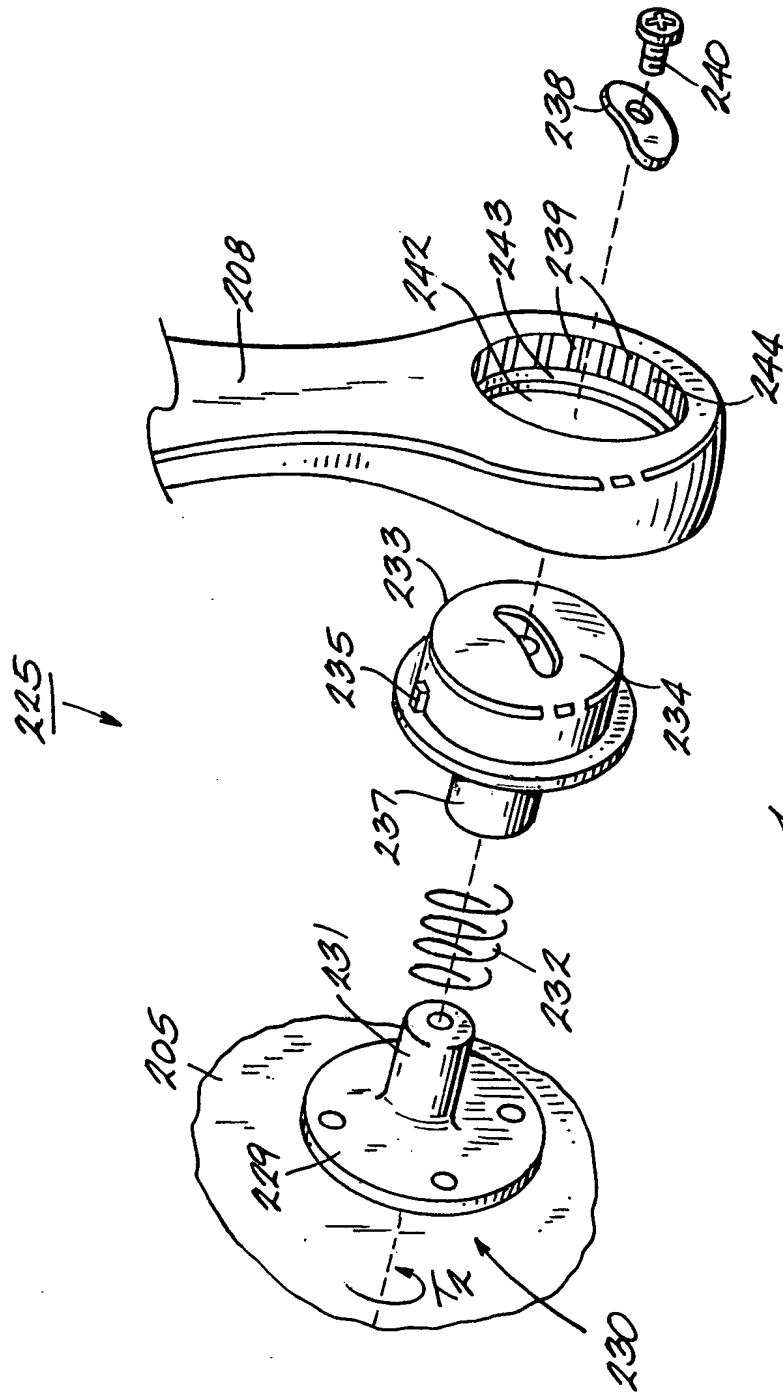


Fig. 5